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Histories of Social Functioning and Mental Healthcare in Severely Dysfunctional Dual-Diagnosis Psychiatric Patients

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Abstract

Disengagement from mental health services is a major obstacle to the treatment of homeless dual-diagnosis patients (i.e. those with severe mental illness and substance-use disorder). A subgroup of these patients is considered to be treatment resistant and we aim to explore whether patients' reasons for disengagement may stem from negative experiences in their lives and treatment histories. This retrospective, explorative study examined the medical files of 183 severely dysfunctional dual-diagnosis patients who had been admitted involuntarily to a new specialized clinic for long-term treatment. Most patients shared common negative experiences with respect to childhood adversities, low school achievement, high levels of unemployment, discontinuity of care and problems with the judicial system. The lifetime histories of treatment-resistant, severely dysfunctional dual-diagnosis patients showed a common pattern of difficulties that may have contributed to treatment resistance and disengagement from services. If these adversities are targeted, disengagement may be prevented and outcome improved.

Keywords: Severely mentally ill, Dual diagnosis, Treatment resistance, Difficult-to-engage, Compulsory treatment, Homeless.

Introduction

Drake, Osher and Wallach (1991) drew attention to a very vulnerable group of homeless people who had been dually diagnosed with severe mental illness (SMI) and substance-use disorder. Many of these people also had somatic illnesses, legal problems, behavioural problems, skill deficits, histories of trauma and inadequate support systems. The authors concluded that this group of patients has complex and poorly understood needs.

More recent studies have described a subgroup of dual-diagnosis patients with similar traits, characterizing them as ‘difficult-to-engage’, ‘therapy resistant’ or ‘non-responders to treatment’ (Smith, Easter, Pollock, Pope & Wisdom, 2013; Mulder, Torleif, Bahler, Kroon & Priebe, 2014). While many of these patients are homeless or in prison, they are in great need of psychiatric care, addiction care and somatic care and also in need of care by the social services (Schanda, Stompe & Ortwein- Schwoboda, 2013).

Limitations in Dual-Diagnosis Treatment

In the 1980s Drake and Wallach (2000) introduced the term ‘dual diagnosis’ and raised awareness of substance use by people with severe mental illness (SMI). Due partly to the separation of psychiatric services and addiction services in many countries, the complex negative interaction between substance use and SMI was long overlooked. However, the poor treatment outcomes in the two separate services led to innovations in the treatment of dual-diagnosis patients, for whom mental health and substance- abuse treatment were combined in what was termed Integrated Dual Diagnosis Treatment (IDDT) (Kruszynski, Boyle, 2006).

Similarly, to improve the engagement and treatment of dual-diagnosis patients, several new kinds of intervention and programme were developed, including assertive outreach,

motivational interventions, residential programmes, inpatient treatment and housing projects (Planije, Van Rooijen & Kroon, 2006).

Despite these innovations, at least 50% of these patients do not respond well to outpatient IDDT or to other outpatient psychosocial treatments (Brunette, Mueser & Drake, 2004; Drake, Mueser, Brunette & McHugo, 2004).This may be partly because they lack safe and stable living arrangements: many are homeless or live in neighbourhoods that are affected by drug abuse (Brunette, Mueser & Drake, 2004).

In 2006 the Netherlands' national government started an active programme to address the needs of homeless people. Although a small subgroup of homeless people were well known to the mental- healthcare services, they were considered to be treatment resistant: over the years they had been treated by all available means - including frequent compulsory hospital-admissions - without lasting improvements. Most of them were at risk of severe self-neglect and social deterioration, and they caused nuisance in the streets. In 2006 the government decided to build a new and unique treatment facility for them.

To develop and improve the treatment, we wished to gain insight into the characteristics of this group of patients, including their life-time history of social functioning and their previous use of mental-health services.

Aim of the Study

To analyse the life courses and mental-healthcare histories of a group of severely dysfunctional dual-diagnosis patients, considered by the current services to be treatment resistant but also to be at risk of lasting danger to themselves or others,
in order to explore whether patients' reasons for disengagement may stem from negative experiences in their lives and treatment histories.

Methods

Design and Setting

This retrospective study was based on the medical files of all patients who had been admitted involuntarily between 2007 and 2013, to a special facility for dual-diagnosis patients.

The patients included in this study had been referred by the municipal health authorities of three major Dutch cities (Amsterdam, Rotterdam and Groningen). They had lived on the streets, causing nuisance, and were considered by the available services to be treatment resistant. Ultimately they were also at high risk of severe self-neglect and social deterioration.

In 2006, the Dutch government decided to build 'Sustainable Residence' (SuRe), a new facility for these patients. On the basis of a civil-law court order, patients are admitted involuntarily to SuRe for longer periods that are determined by an independent psychiatrist and a civil-law judge. Every six or twelve months, a judge decides whether the court order should be extended.

Admission to SuRe is based on four criteria: (1) dual diagnosis (SMI and substance- use disorder); (2) a history of homelessness; (3) failure of earlier treatment to achieve lasting improvement despite the use of appropriate means, including multiple involuntary admissions; (4) the imposition of a civil-law court order for involuntary admission on the basis of the risk of lasting danger towards themselves or others.

The patient sample for the current study, comprised all the patients admitted to SuRe between 2007 (its start of operations) and 2013. The study was approved by the Dutch Medical Ethical Committee for the Mental Health Services.

Materials

We studied the files of patients admitted to SuRe. These included referral letters, court orders, treatment reports, personal interviews, and interviews with family members. Information was also gathered by social workers and a cultural anthropologist working at SuRe, who collected information from family members on the patients' overall and cultural backgrounds, including information on the patients' family system, and on their childhood, school and job history.

To collect standardized information on the life and mental healthcare history from these files, we developed a case-record form with clear definitions of the variables to be assessed.

A research team screened the files for facts about these variables and scored them on the form. When information in a file was not coherent or not available for a variable it was scored as 'missing' data.

Variables

We studied the patients' life and mental-healthcare histories in three domains: (1) childhood functioning (up to 18 years of age); (2) social functioning (18 years and above); and (3) lifetime care-histories in mental health. The items in these domains were selected on the basis of their potential risk to or protective influence on the patient's social and psychological functioning.

For the first domain (the childhood period) we selected items on: - family structure (including parental loss, i.e. parental divorce, parental death and court custody, or caretaker with mental, addiction or judicial problems); - other childhood adversities (including migration or physical or sexual abuse); - educational achievement, drug and /or alcohol use, behavioural problems and contacts with professional care (e.g. youth or social care) or the judicial system.

For the second domain (the history of social functioning), we collected data on: employment history, living arrangements (including having lived independently and history of homelessness), financial problems, having children, and contact with the police or judicial system (including detention history).

For the third domain (mental-health history - before admission to SuRe) we established the age at onset of psychiatric and addiction problems, age at first contact with the services, the number of voluntary and compulsory admissions, and periods of care in which functioning appeared to be stable (including history of supported housing or supported independent living).

As many patients had had unsettled lives, they often lose contact with mental health services and consequently the information in their patient files was not complete for some of the variables we studied.

Similarly, information on the patients' judicial history kept by the police and the Department of Justice had been only partly documented and neither organization gave us permission to access its files.

Results

We examined the files of all 183 patients admitted to the treatment programme at SuRe between 2007 and 2013. Table I shows the demographic and clinical characteristics of the study sample.

Table I. Demographic and clinical characteristics of severely dysfunctional and treatment-resistant dual-diagnosis patients admitted to Sustainable Residence between 2007 and 2013

	N = 183
Gender, N (%) [#]	
Male	152 (83.1)
Female	31 (16.9)
Age, mean (SD; range)	39.4 (8.4; 22-59)
Country of birth, N (%) [#]	
Netherlands	83 (46.9)
Suriname	39 (22.0)
Netherlands Antilles	14 (7.9)
Other[a]	41 (23.2)
Missing	*6*
Education (completed) [b], N (%) [#]	
Low	97 (63.4)
Intermediate	48 (27.5)
High	8 (9.2)
Missing	*30*
Diagnosis at referral to SuRe, N (%) [#]	
DSM IV axis I	
Psychotic disorders	153 (90.0)
Substance abuse or dependence	158 (92.9)
Other axis 1 disorder	21 (12.4)
Missing	*13*
DSM-IV axis II	
Personality disorder	59 (36.4)
Borderline intellectual functioning or less (IQ < 85)	30 (18.6)
Missing	*21*
DSM-IV axis V	
GAF at admission, mean (SD; range)	35 (7.9; 15-55)
Missing	*26*

Relative frequencies (excluding patients with missing values).

[a] Countries on the following continents: Africa (14.1%); Asia (5.1%), Europe (3%), South America (1.1%), Oceania (0.6%)

[b] Low: elementary school or less. Intermediate: lower or intermediate vocational or general education. High: higher vocational or university education.

The study sample was predominantly male and represented a wide age range (from 22 to 59 years). Over half the patients had been born outside the Netherlands and had a low educational level (elementary school or less). Upon referral to SuRe they had, almost without exception, been diagnosed with a psychotic disorder, particularly paranoid schizophrenia (58.2%) and disorganized schizophrenia (15.0%). In addition, almost all had a substance use or dependence disorder (92.9%), usually involving multiple drugs. The substances most used were cocaine (38.8%), cannabis (32.9%) and alcohol (22.4%). Eighty-four percent of the total sample (142 patients) had a combination of a psychotic and substance-use disorder. In a few cases (12.4%) other axis I disorders were stated, including mood disorders and substance-induced disorders. About one third of the patients also had a personality disorder: in 13.6% this consisted of an Antisocial Personality Disorder and in 16.7% it was Personality Disorder Not Otherwise Specified. A substantial proportion of the patients had borderline intellectual functioning or less (defined as an IQ less than 85). Overall, patients' psychosocial functioning was poor, with a mean GAF score of 35 at referral to SuRe.

Childhood Functioning

Table II shows the childhood experiences of the patients.

Table II. Childhood experiences of severely dysfunctional and treatment-resistant dual-diagnosis patients admitted to Sustainable Residence between 2007 and 2013

	N = 183
Childhood adversities <18 years, N (%) [#]	
Parental loss [a]	105 (69.5)
Missing	*32*
Abuse (physical or sexual)	53 (51.5)
Missing	*80*
Caretaker's mental illness/ substance abuse/ criminality	50 (65.8)
Missing	*107*
Migration <18 years	77 (46.7)
Missing	*18*
Any childhood adversity	142 (92.8)
Missing	*30*
Onset of alcohol or drug use <18 years, N (%) [#]	92 (71.3)
Missing	*54*
Behavioural problems <18 years	101 (87,1)
Missing	*61*
Contact with professional care <18 years [b] N (%) [#]	50 (44.2)
Missing	*70*

Relative frequencies (excluding patients with missing values).
[a] Parental death, parental divorce, and other loss of contact with parents or caregivers.
[b] Youth care, social work, etc..

The files of over three quarters of the patients contained references to a form of childhood adversity; most had an accumulation of various types of adversity. The most prevalent being parental loss (69.5%) which included parental divorce, parental death, and court custody. Fewer than one third of the patients had been raised by both their own parents. In addition, over half had had a caretaker with mental, addiction or judicial problems, had been physically or sexually abused during childhood or had migrated before their eighteenth birthday. They had migrated at a vulnerable age (mean: 13.6 years) which may have affected their educational achievements and options for social adjustment.

Before age 18, over a third had had contacts with professional care services such as youth care services or social services. The reasons for these contacts lay in behavioural problems that, by that age had already started in 87.1%. 33.6% already having experienced psychiatric symptoms and 19.4% having received mental healthcare treatment. By that age 71.3% had also experienced their first drug or alcohol use.

Social Functioning

Table III shows the aspects of adult social functioning.

Table III. Adult social functioning and judicial history of severely dysfunctional and treatment-resistant dual-diagnosis patients admitted to Sustainable Residence between 2007 and 2013

	N = 183
Independent housing, N (%) [#]	124 (81.6)
Missing	*31*
Homelessness, N (%) [#]	140 (90.3)
Missing	*28*
Paid job, N (%) [#]	107 (77.5)
Missing	*45*
Having Children, N (%)[#]	49 (32.2)
Missing	*31*
Detention, N (%)[#]	131 (87.9)
Missing	*34*

[#] Relative frequencies (excluding patients with missing values) of patients who had experienced the phenomenon once or more during their lifetime.

During adulthood most patients had lived on their own for at least a short period. Almost all had also experienced homelessness for periods ranging from six months to five years. Although fifteen had not been homeless, they had spent periods without accommodation of their own in which they had been hospitalized or incarcerated, or had stayed with family. For a period during their lifetime, most had also had a paid job. In many cases the duration of these jobs was unknown although the information in the files suggested that it had often been rather brief. When specified in the patient files the periods with a job had ranged from under a month to over a year. However, most patients' working careers had lasted no longer than a year. Only fifteen patients (10.9%) were documented to have had a paid job for five years or more. Financial problems were mentioned in the patient files but usually without any details. When admitted to SuRe, 79.5% had serious financial debts that amounted to a mean of 8,516 euro per patient. One third of the patients had children which may indicate a period of relatively stable social functioning.

Before admission to SuRe all patients had caused serious nuisance in their surroundings; this had often ended in police intervention. Most patients had been detained once or more. Overall, their criminal activities had been related to substance use and drug dealing; these activities included substance use in public, disturbing the public order, begging, misbehaving and stealing.

In particular, 23.9% of the patients had been incarcerated under the Dutch Persistent Offenders Act (POA), which is intended for frequent offenders, and in practice often involved drug-related – misdemeanours. Under this Act patients had been detained for two years in a special prison facility where training programmes had been available in the first year and vocational skills had been further developed in the second.

The files also reported serious crimes. However, due to the lack of exact data provided by the police or Justice Department we can do no more than provide examples: stealing, burglary, aggressive behaviour, menace, violence and physical abuse.

By way of illustration, the two boxes provide case descriptions of typical patients who had been admitted involuntarily to SuRe in the period under study.

Patient X

This patient was born in South-America. His parents died when he was five years old and he was placed in a foster home. Due to problems with his foster-father he was finally was adopted by a Dutch couple at the age of eight. In the adoptive family he was seriously physically abused; at age 11 he started to use heroine. At 12 he attempted suicide. After a long period of physical recovery, he was placed in a boarding school where his behaviour was out of control. He ran away and started a life of wandering, often in Amsterdam. Later he lived with a girlfriend. They had a baby. In this period, when he was a regular cocaine-user, he started to beat his girlfriend. Eventually he asked for help and his girlfriend went to a safe house. From then on he started to use more alcohol and drugs, which led to aggressive behaviour and paranoid symptoms. Over the next few years many attempts were made to treat him, including compulsory admissions. These did not lead to lasting improvements. For a year he lived in a supported housing facility. When he was drunk he became very aggressive; neither were outpatient care providers able to handle his dangerous behaviour. He was involved in many aggressive incidents on the street. He got infected with HIV and struggled with loneliness and hopelessness. Due to the risk of social and personal deterioration he was admitted involuntarily to SuRe.

Patient Y

Mr. Y had an overprotective mother and an alcoholic father. At elementary school he had learning problems and failed twice. At 12 he started to use cannabis and, some years later, tranquilizers. Due to aggressive behaviour, he was removed from school at 14. He then had several jobs: in an abattoir, at sea, and in gardening. When he was 16, his parents threw him out because they were unable to control his behaviour problems. He then lived on the streets for many years. He was convicted many times for criminal activities such as bicycle theft, shoplifting, begging and burglary. At 23 he was admitted to a mental healthcare clinic due to psychotic symptoms. In that period he was a regular cocaine and heroin-user. He had his first treatment in addiction care eleven years later. Repeated hospitalizations followed for his psychotic disorder (schizophrenia) and for his addiction problems. Upon discharge, he consistently returned to the streets and continued to use drugs. Over the years he was incarcerated 19 times. After his last detention, when he was 40, he was admitted involuntarily to SuRe.

Mental Healthcare History

One of the conditions for referral to SuRe is a ‘history of treatment by all appropriate means (including compulsory treatment)’. In this part of the study we review the patients’ mental healthcare history before their admission to SuRe. Mental healthcare includes both psychiatric and addiction services.

In table IV the lifetime mental healthcare history of the patients.

Table IV. Lifetime history of mental healthcare of severely dysfunctional and treatment-resistant dual-diagnosis patients admitted to Sustainable Residence between 2007 and 2013

	N = 183
Age at onset of psychiatric disorders[a] (mean; SD)	21.2 (7.3)
Missing	*57*
Age at onset substance use (mean; SD)	16.9 (5.9)
Missing	*52*
Age at first contact with psychiatric services, (mean; SD)	24.0 (7.6)
Missing	*21*
Age at first contact with addiction services, (mean; SD) [#]	30.5 (8.8)
Missing	*35*
History of mental healthcare by category, N (%) [#]	
Admission to psychiatric services	135 (96.4)
Admission to addiction services	71 (50.7)
Admission in forensic setting	26 (18.6)
Supported housing or supported independent living	102 (72.9)
Missing	*43*
Number of admissions to psychiatric services, N (%) [#]	
0	6 (3.9)
1-5 times	62 (40.0)
6-10 times	45 (29.0)
11 times or more	42 (27.1)
Missing	*33*
Number of admissions to addiction services, N (%) [#]	
0	74 (48.4)
1-5 times	71 (46.4)
6-10 times	6 (3.9)
11 times or more	2 (1.3)
Missing	*30*
History of compulsory admission, N (%) [#]	167 (96.0)
Missing	*9*

(Relative frequencies (excluding patients with missing values).
a According to DSM-IV criteria; excluding substance abuse or dependence.

A large majority of the patients (79.2%) were reported to have had psychiatric symptoms (other than addiction) before the age of 25. The mean age at first contact with mental healthcare services (including addiction services) was 23.9 years; 79.6% had had mental-healthcare treatment before the age of 31 – meaning of course that there is also a subgroup of patients (20.4%) who had first contact with mental healthcare professionals after the age of 30.

Almost all patients had been admitted to a psychiatric hospital. Those who had not had been in an addiction clinic. With few exceptions – i.e. patients referred to SuRe after detention - all patients had experienced involuntary admissions. Given the dual diagnoses in this patient group, there is a remarkable difference between the number admitted to psychiatric services (96.4%) and those admitted to addiction services (50.7%).

With regard to the lifetime duration of inpatient treatment in psychiatric or addiction services, 8.5% of the patients had been hospitalized for less than a total of 1.5 years. At the opposite end of the scale, 17.5 % had been hospitalized for more than 4 years.

In addition to inpatient psychiatric and addiction care, roughly one in five of the patients had experienced inpatient treatment in forensic settings due to serious criminal acts.

Two thirds of all patients had lived in supported housing or supported independent living, which may be taken as an indication that they also had experienced periods of relatively stable psychiatric functioning and care. Although seven patients had lived in such settings for 4 - 5 years, all had been discharged due to a worsening of their psychiatric symptoms and/or addiction. In most cases, their eviction had been due to the behavioural problems that had accompanied this deterioration.

In summary: almost all patients had been admitted to a psychiatric and / or addiction hospital and had also experienced compulsory admissions. Only two patients had not, and had been referred to SuRe after their detention. Over half of the patients had been admitted to both

psychiatric and addiction clinics and had had residential care in supported housing or supported independent living.

The lifetime provision of treatment by Assertive Outreach Teams had not been recorded in the patient files well enough to provide specific findings over patients' lifetimes, but most patients had been in care with these teams.

Figure 1 summarizes the findings presented above by showing an average life trajectory for the patient group. It shows that there was a mean period of 15 years between first treatment by the mental healthcare services and admission to SuRe. Overall, between the onset of psychiatric problems and admission to SuRe there was a mean 18.4 -year period of treatment inputs, homelessness, police contacts, detentions, addiction problems and unemployment.

Fig 1. An average lifeline overview[5] of the developmental and care history of severely dysfunctional and treatment-resistant dual-diagnosis patients admitted to Sustainable Residence between 2007 and 2013

Insert figure 1 here

Discussion

This study describes the life- and mental-health-service histories of severely dysfunctional dual-diagnosis patients who showed dangerous behaviour to self or others and were considered to be treatment resistant by the current services. They had been referred to a new facility called Sustainable Residence (SuRe).

The life histories showed an accumulation of risk factors and losses, and hardly any protective factors. The patients had experienced many childhood adversities, had few educational achievements and had used substances before the age of eighteen. Their psychiatric problems – usually psychotic symptoms - had become apparent at around the age of 21. In approximately the same period they had showed disruptive behaviour, which in many cases led to police interventions. Most had been unable to keep a job for a longer period, and had also had financial problems. Most had been diagnosed with schizophrenia (paranoid type) and multiple substance-use disorder. The mental health histories showed a pattern either of many brief hospitalizations and crisis interventions, or of a smaller number of long hospitalizations. In neither case had there had been lasting improvements in functioning.

Life histories with ongoing stressful events such as found in our patient group were described by Padgett, Smith, Henwood and Tiderington (2012) as a 'chain of risk in which one exposure tends to lead to another'. The authors hypothesized that an accumulation of adversities and life stress creates sources of emotional destabilization, many of them latent and poorly understood. This permanent emotional instability undermines the efforts of care providers to address the manifest problems, such as psychotic symptoms, homelessness and substance abuse. In the same authors view, treatment of this patient group should also address the 'often hidden psychological burdens or traumas as well as the chronic stress of poverty and social isolation'.

With respect to the characteristics of the patients we studied, three deserve special attention. First, the patients' educational levels were particularly low: only 36.7% had finished secondary education, which is substantially lower than the 67.0% found in a study of homeless people in the four major cities in the Netherlands (Van der Laan, Straaten, Boersma, Schrijvers, Van der Mheen & Wolf, 2013). This raises the question of whether they had been screened properly for learning disabilities during their periods of psychiatric or addiction treatment. Early diagnosis of learning disability might improve insight into problems at school – which, if unrecognized, might otherwise spread to other domains. Although, upon referral to SuRe, only 18% of patients in our study had been diagnosed with borderline intellectual functioning or less, this diagnosis may have been unrecognized in other patients. The second characteristic that deserves attention is the fact that almost all patients had been diagnosed with a psychotic disorder - besides substance misuse or dependence. In other Dual Diagnosis clinics in the Netherlands, only 24.0% of the patients are diagnosed with a psychotic disorder (De Weert-van Oene, Holsbeek & De Jong, 2011). While substance use has a destabilizing effect on psychotic problems, some drugs can also attenuate the psychotic symptoms, thereby encouraging a patient to use substances. This can result in a circle that should be targeted in treatment.

The third characteristic is that substance use usually started much earlier in the patients' lives than the psychiatric problems did. Nevertheless, the mean age at which patients entered addiction care was almost seven years higher than their age at first contact with psychiatric care, and the number of admissions to addiction services was substantially lower than that to psychiatric services. This might indicate that despite the IDDT programmes, the separation of psychiatric care and addiction care is still an issue. To prevent the long care trajectories described in this article, we therefore argue that dual-diagnosis treatment for young people should be provided earlier.

Limitations

Our study has two major limitations. First, the data were obtained from patient files, which, by definition, had not been compiled for research purposes. These data had been collected retrospectively and were sometimes incomplete. When studying patients whose care-avoidance often causes them to lose contact with the services such problems are probably inevitable. Second, as we had received no permission to access the files of the Justice Department, our information on the patients' judicial history was incomplete.

Conclusion and Clinical Implications

The life histories of this group of severely dysfunctional and treatment-resistant dual-diagnosis patients showed a common pattern of difficulties that may provide a target for prevention by mental-health and social services. A broad range of well-known risk factors had accumulated in these patients' lives. If such factors are recognized at an early stage, it might be possible to prevent 'the chain of risk' that leads to psychological conditions that can undermine the care providers' efforts.

The patients' mental-healthcare histories demonstrate the failure – at some expense- of many inpatient and outpatient treatment inputs. Our results therefore underscore the importance of integrated and assertive treatment, and also of continuity of care to attempt to improve patients' outcome. Better care may help to reduce the high costs not only for the mental health services but also to society as a whole (including the police and Department of Justice).

In the patient group we studied, fragmentary treatment efforts were succeeded by periods of homelessness, criminality, crisis interventions, imprisonment and active outreach. Reasons for dropping out of treatment are often formulated in terms of patients' disruptive behaviour.

Instead, it might be more helpful if the focus shifted to care providers' difficulties in forming a working alliance with them.

Research should therefore establish and develop the following: strategies for improving engagement of this patient group, interventions that meet their needs, and in particular, timely, effective and cost-effective, treatment programmes for dual- diagnosis patients who do not benefit from current outpatient or (assertive) outreach treatment.

Abbreviations

SuRe: Sustainable Residence. Facility for dual-diagnosis treatment in the Netherlands.

SMI: Severe Mental Illness.

IDDT: Integrated Dual Diagnosis Treatment.

POA: Persistent Offenders Act in the Netherlands.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Authors' contributions

GDvK contributed to the study design, literature search, data acquisition, and interpretation of results. She was also responsible for manuscript writing and revision.

WJD contributed to the study design, literature search, data acquisition, interpretation of results and revision of the manuscript.

WGM contributed to the study design, and also revised the manuscript critically for important intellectual content.

GHM Pijnenborg contributed to the interpretation of results and revision of the manuscript.

RHSvdB was responsible for the study design, and contributed to literature search, interpretation of results and revision of the manuscript.

CLM was responsible for the management of the study, and contributed to the interpretation of results and revision of the manuscript.

All authors have read and approved the final manuscript.

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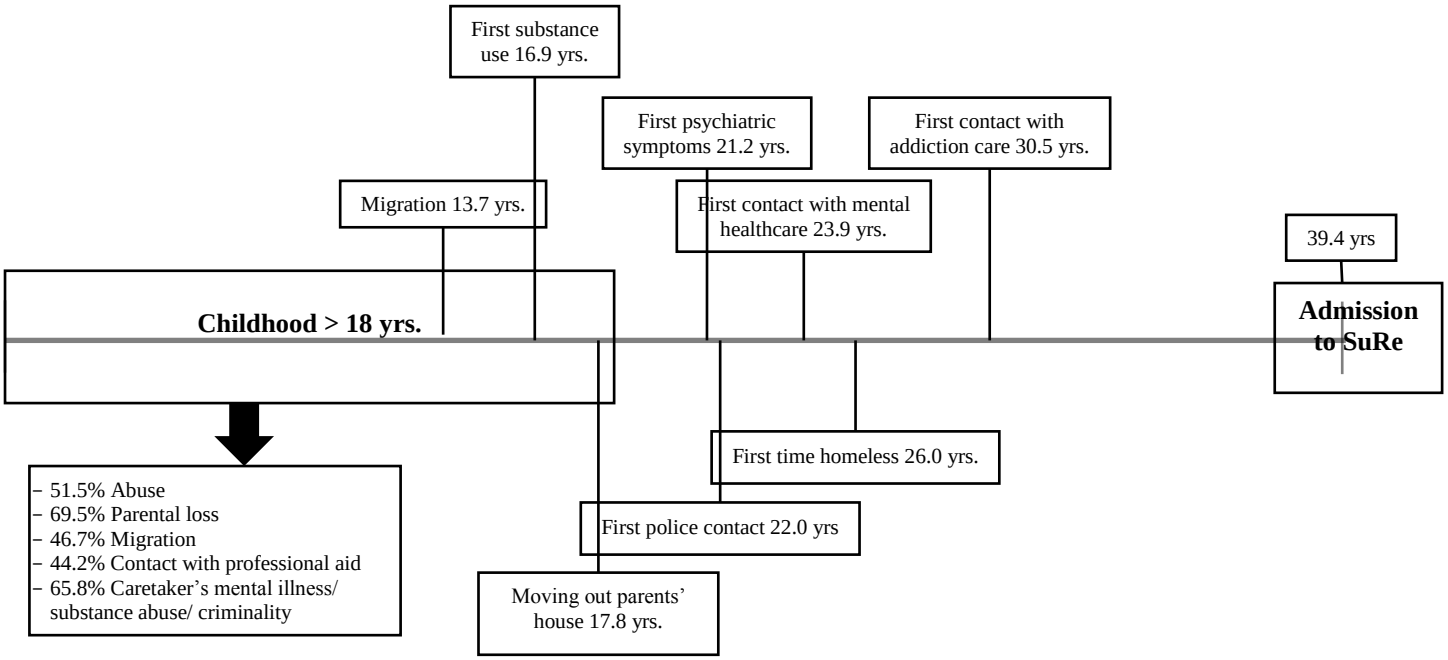
First substance use 16.9 yrs.
First psychiatric symptoms 21.2 yrs.
First contact with addiction care 30.5 yrs.
Migration 13.7 yrs.
First contact with mental healthcare 23.9 yrs.
39.4 yrs
Childhood > 18 yrs.
Admission to SuRe
First time homeless 26.0 yrs.
First police contact 22.0 yrs
Moving out parents' house 17.8 yrs.
- 51.5% Abuse
- 69.5% Parental loss
- 46.7% Migration
- 44.2% Contact with professional aid
- 65.8% Caretaker's mental illness/ substance abuse/ criminality